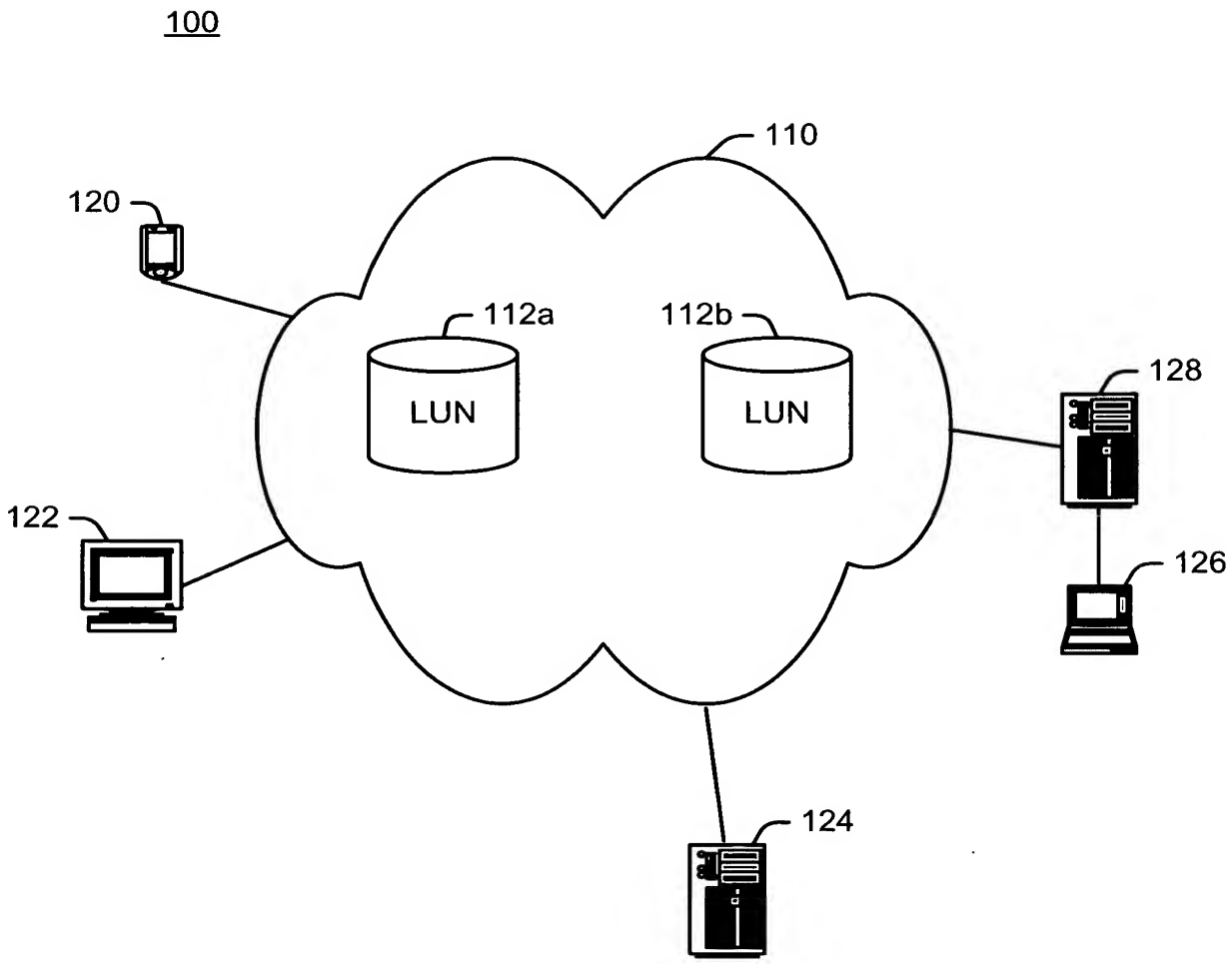

Fig. 1

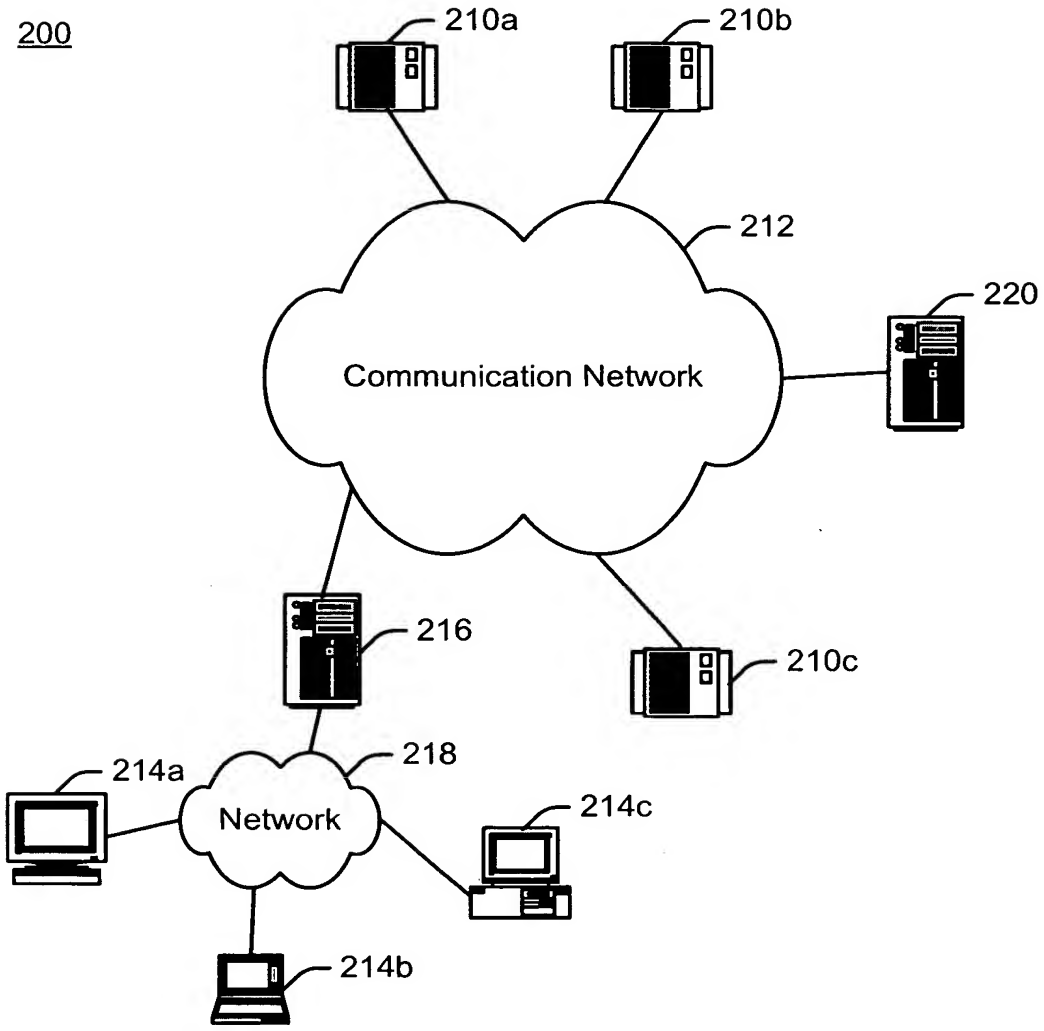
200
210a
210b
212
220
Communication Network
216
210c
214a
218
Network
214c
214b

Fig. 2

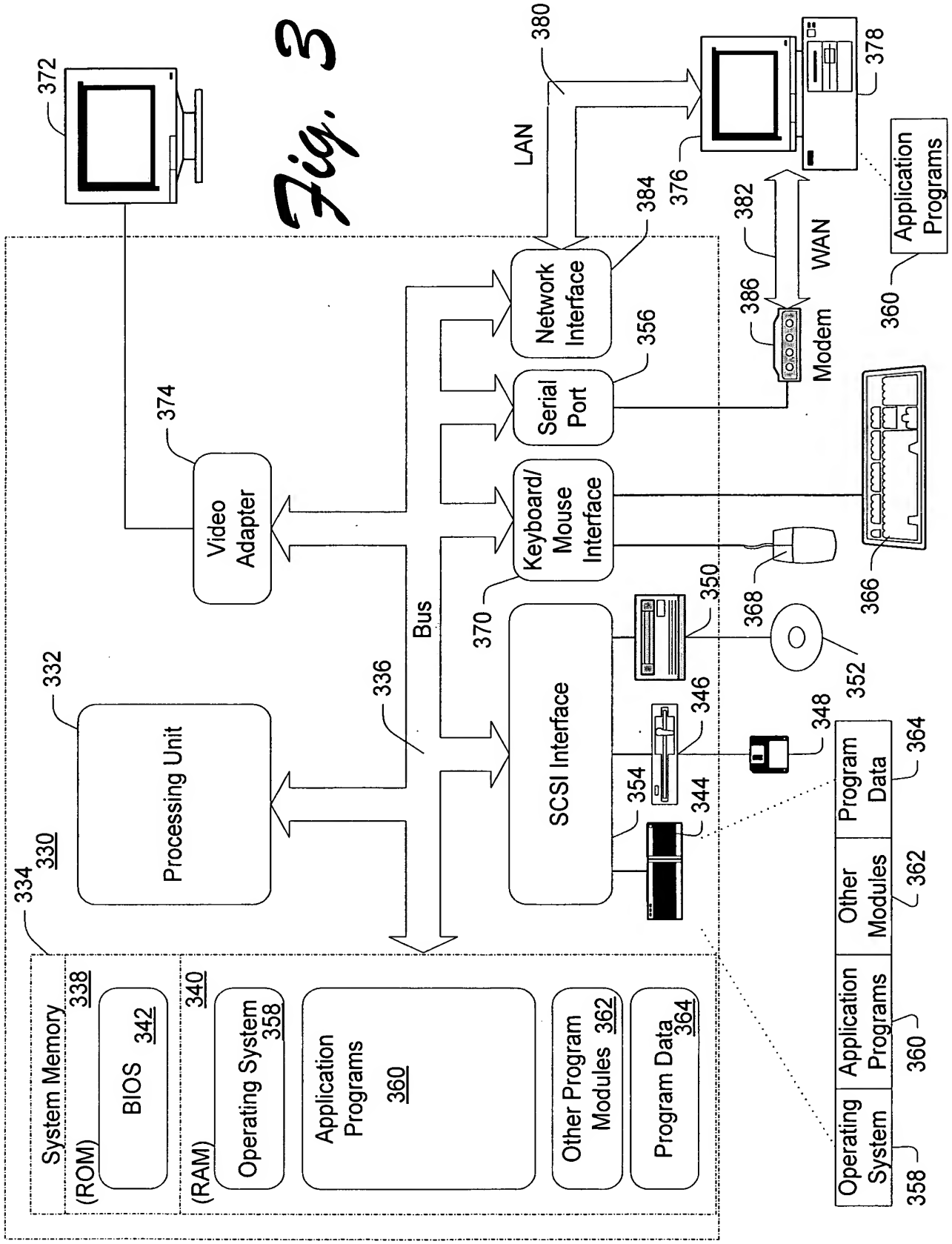
Fig. 3
372
380
LAN
378
376
384
382
WAN
386
Modem
Application Programs
360
Network Interface
356
Serial Port
374
Video Adapter
Keyboard/ Mouse Interface
370
Bus
350
368
366
332
336
Processing Unit
SCSI Interface
346
348
352
354
344
334
330
System Memory
338
(ROM)
BIOS 342
340
(RAM)
Operating System 358
Application Programs 360
Other Program Modules 362
Program Data 364
Program Data
364
Other Modules
362
Application Programs
360
Operating System
358

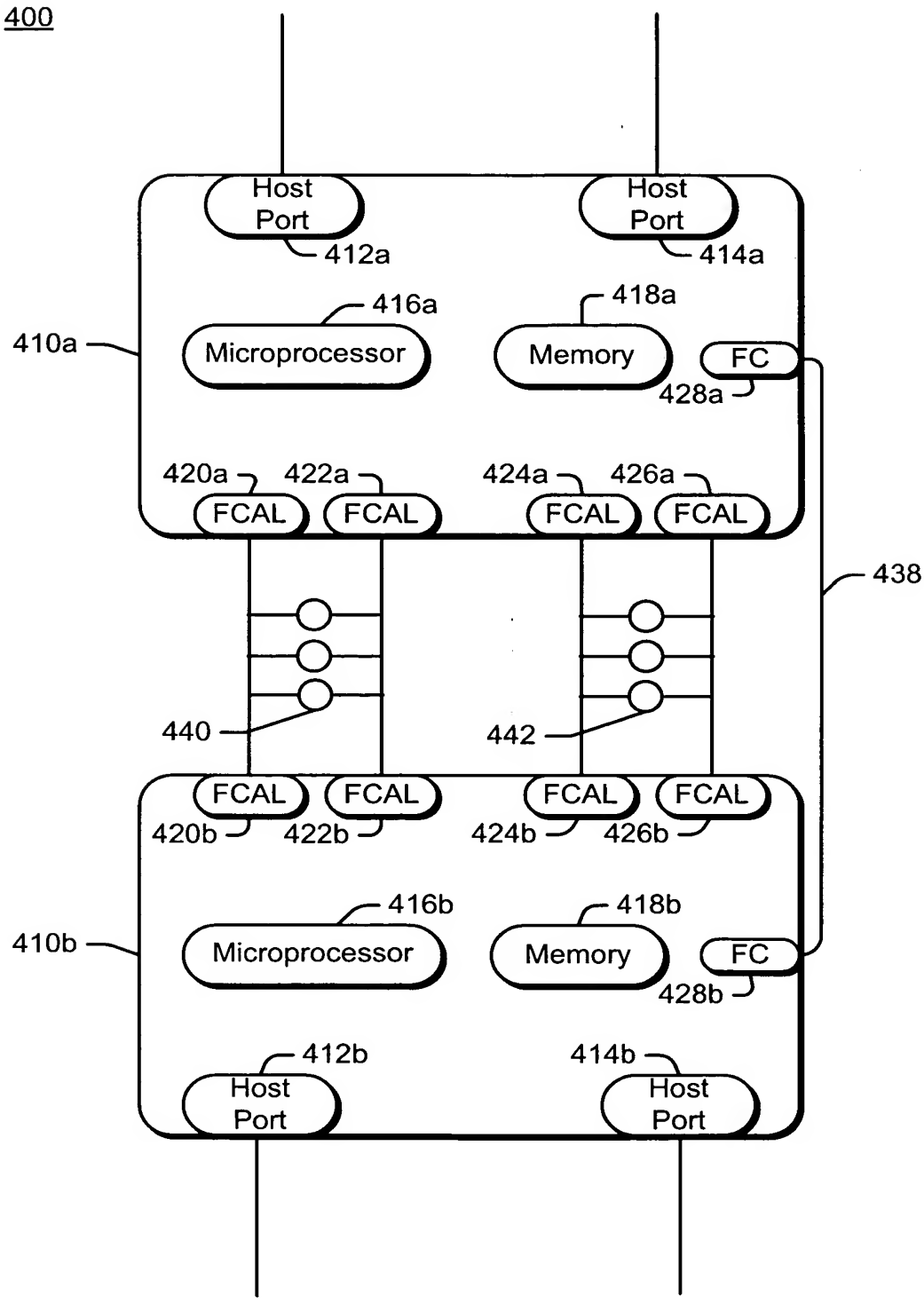
400
Host Port
412a
Host Port
414a
416a
Microprocessor
418a
Memory
FC
428a
410a
420a
422a
424a
426a
FCAL
FCAL
FCAL
FCAL
438
440
442
FCAL
FCAL
FCAL
FCAL
420b
422b
424b
426b
416b
Microprocessor
418b
Memory
FC
428b
410b
412b
Host Port
414b
Host Port

Fig. 4

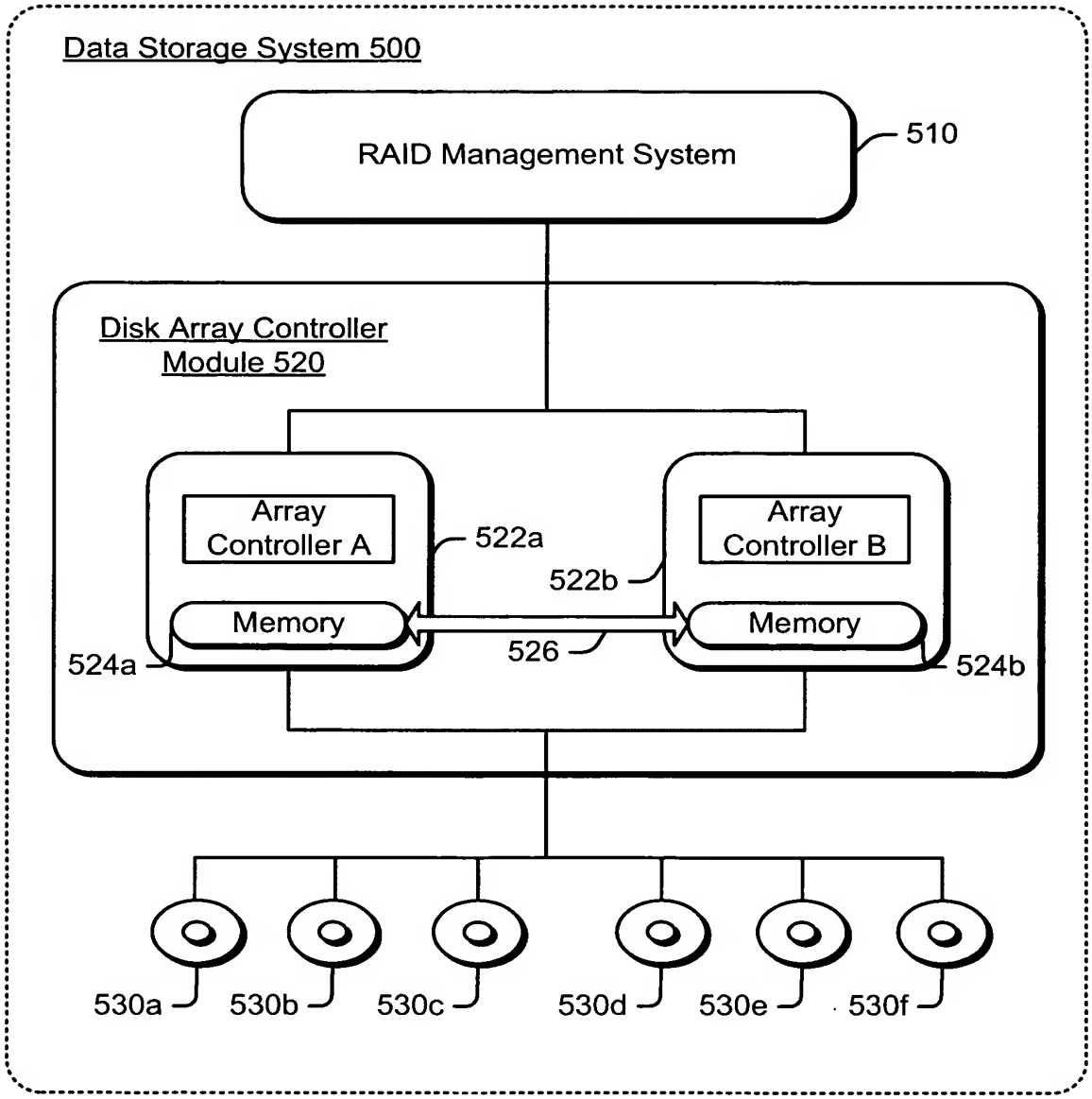
Data Storage System 500
RAID Management System
510
Disk Array Controller Module 520
Array Controller A
522a
Array Controller B
522b
Memory
Memory
526
524a
524b
530a
530b
530c
530d
530e
530f

Fig. 5

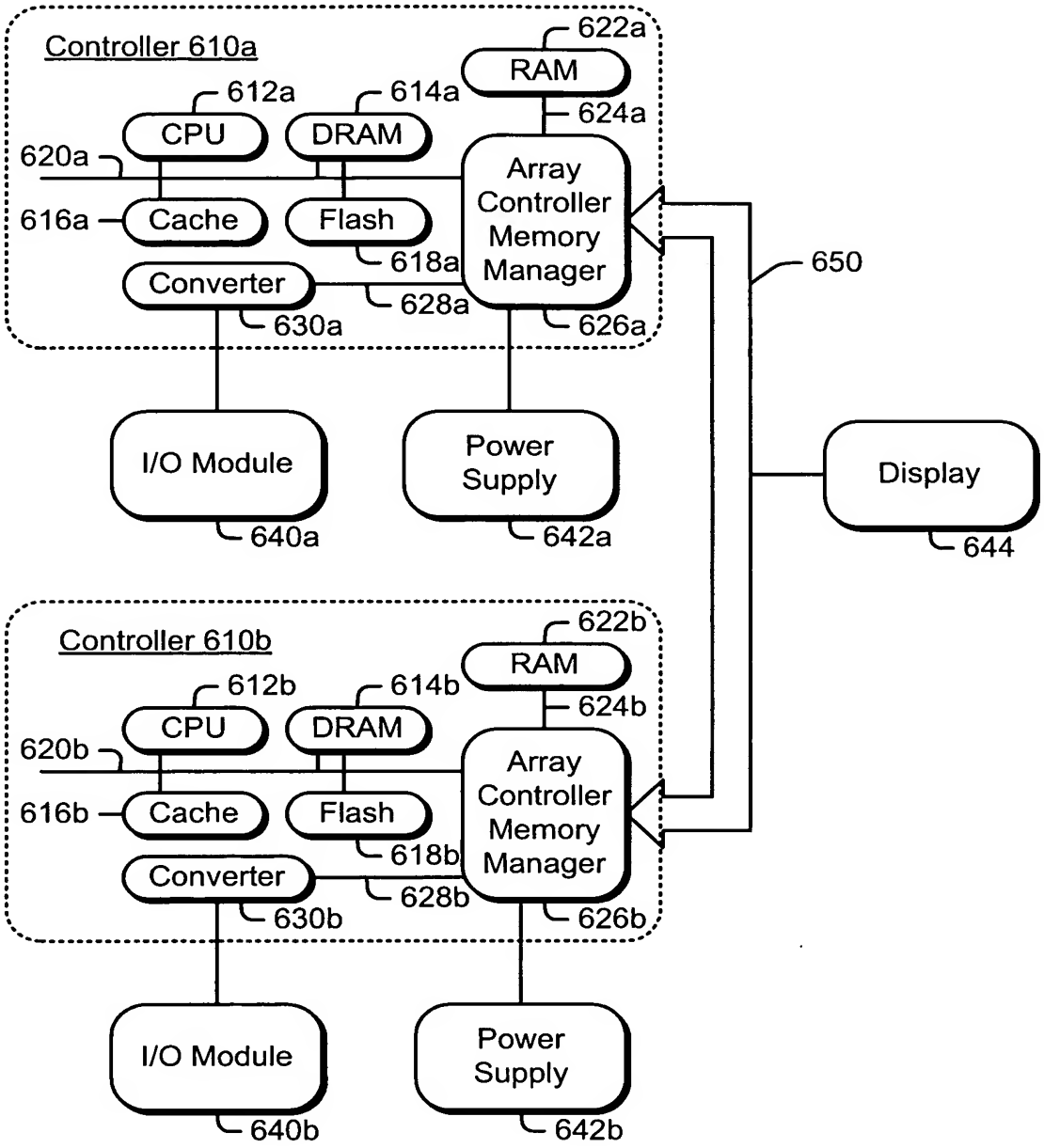
Controller 610a
622a
RAM
612a
614a
CPU
DRAM
624a
620a
Array Controller Memory Manager
616a
Cache
Flash
618a
650
Converter
628a
630a
626a
I/O Module
Power Supply
Display
640a
642a
644
Controller 610b
622b
RAM
612b
614b
CPU
DRAM
624b
620b
Array Controller Memory Manager
616b
Cache
Flash
618b
Converter
628b
630b
626b
I/O Module
Power Supply
640b
642b

Fig. 6

700

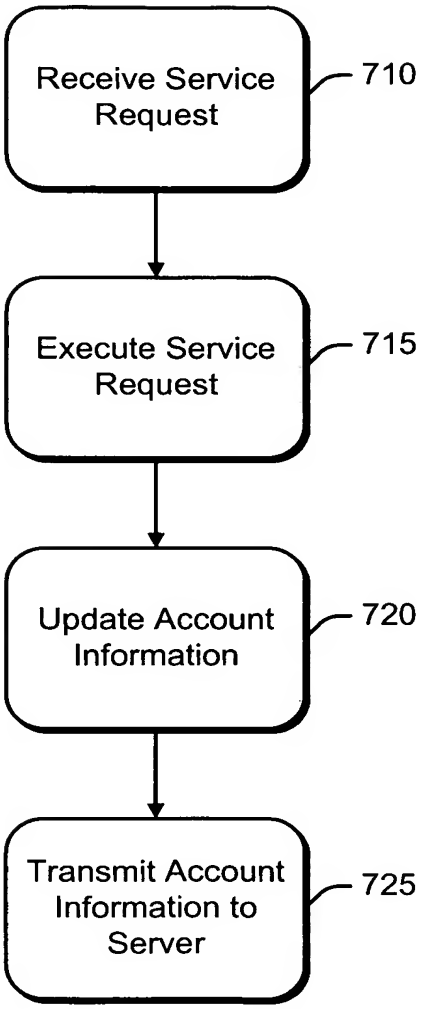
Receive Service Request
710
Execute Service Request
715
Update Account Information
720
Transmit Account Information to Server
725

Fig. 7

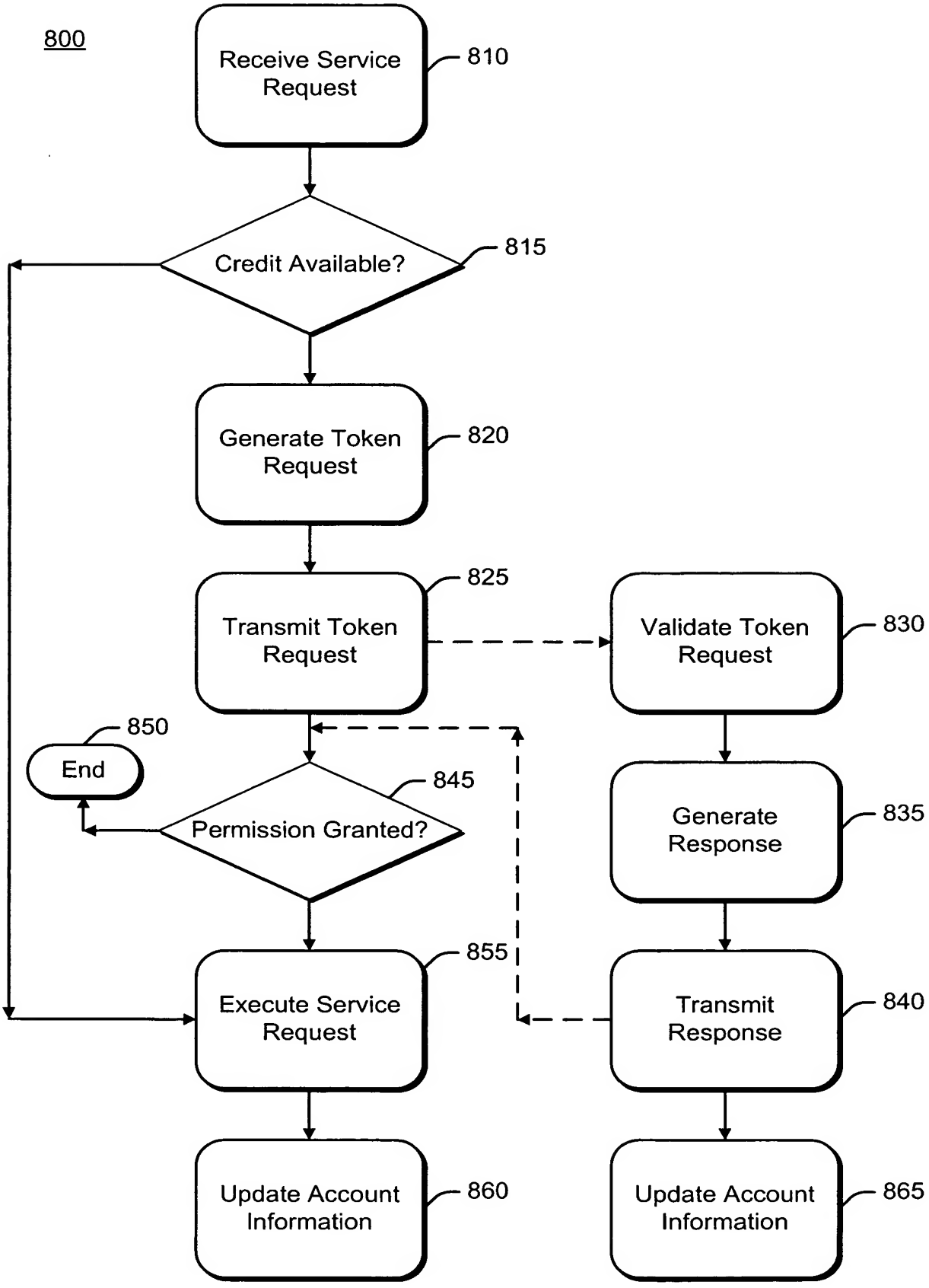
800
Receive Service Request
810
Credit Available?
815
Generate Token Request
820
Transmit Token Request
825
Validate Token Request
830
End
850
Permission Granted?
845
Generate Response
835
Execute Service Request
855
Transmit Response
840
Update Account Information
860
Update Account Information
865

Fig. 8